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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,156	04/06/2006	Jouku Savolainen	LOYZ 200004US01	6845
27885	7590	08/17/2011	EXAMINER	
FAY SHARPE LLP 1228 Euclid Avenue, 5th Floor The Halle Building Cleveland, OH 44115			BADR, HAMID R	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,156	Applicant(s) SAVOLAINEN, JOUKU	
	Examiner HAMID R. BADR	Art Unit 1781	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE, 12/13/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/30/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/13/2010 has been entered.

Claims 1-15 and 17-21 are being considered on the merits.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-10 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites "adding the modified protein and another unmodified protein to the protein containing food product". The phrase "another unmodified protein" implies that the protein which is modified and the protein being mixed with the modified protein are different unmodified proteins. However, the specification as originally filed, does not support this concept. As disclosed in the specification, the protein being modified is either mixed with a portion of the unmodified

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protein, i.e., the protein before modification, or the protein being modified is used in a formulation as a 'modified protein', e.g., modified whey protein. Claim 8 also recites “a first unmodified protein” and “a second unmodified protein”. Again, the specification does not support such concepts. The specification clearly discloses that a protein is modified and the modified protein is mixed with some unmodified protein, i.e., the protein before modification. For instance, modified whey protein is being mixed with regular unmodified whey protein. There are no first unmodified and second unmodified proteins involved.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 1 is indefinite for “adding the modified protein and another unmodified protein”. The phrase “another unmodified protein” implies that the sources of the modified protein, before modification, and the protein with which it is mixed are different. The word “another” is confusing and unclear.

6. Claims 8 and 21 are indefinite for “a first unmodified protein” and a “second unmodified protein”. The words “first” and “second” are confusing and not clear. In all cases a modified protein is being mixed with unmodified protein, i.e., the protein before modification, it is not clear what “first” and “second” signify.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henika et al. (US 3,053,666, of record, hereinafter R1) in view of Savolainen (WO 99/55170; of record; hereinafter R2)

3. R1 discloses the incorporation of whey solids into farinaceous doughs resulting in increased extensibility of the dough and giving proper consistency without adding excessive water. However, when whey is used without cysteine and bromate the results are unsatisfactory and optimum extensibility is not reached. When whey is used together with activating and oxidizing agents e.g., cysteine and bromate the combined effects provide greatly reduced mixing time, reduced fermentation time, optimum extensibility and gas retention. (col. 6, lines 4-18)

4. R1 is clearly disclosing the function of an unmodified protein such as whey protein together with a reducing agent such as cysteine in strengthening the structure of the dough, as manifested in optimum extensibility and gas retention in dough (i.e., strengthened protein network).

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5. While cysteine, as the source of free sulfhydryl groups, is taken advantage of by R1, R1 is silent regarding other sources of free sulfhydryl groups such as modified whey proteins.

1. R2 discloses the modification of whey and soy proteins by sulfonation of one or both of the sulfhydryl groups involved in a disulfide bond. The liberated sulfhydryl groups will make the modified protein more functional regarding emulsification, gellation, foaming etc. (page 9, lines 9-16)

2. R2 discloses that free sulfhydryl groups can bring about the cleavage of disulfide bonds generating new sulfhydryl groups such that the interaction of the sulfhydryl groups of the modified protein and the new sulfhydryl groups will generate intermolecular disulfide bonds creating protein nets. (page 9, lines 18-22)

3. R2 discloses that the formed sulfhydryl groups can be oxidized using oxidizing agents at temperatures of 45-75C. (page 9, lines 24-27).

4. R2 discloses the modification of whey proteins and soy proteins by sulfites. (page 10).

5. R2 discloses how the degree of sulfitolysis desired is achieved when whey proteins are modified. (page 11, lines 16-19).

15. R1 discloses effect of incorporating whey proteins and a reducing agent such as cysteine to strengthen the gluten network in farinaceous doughs. R2 discloses modifying whey proteins through generating active sulfhydryl (-SH) groups. R2 discloses how to generate -SH groups in whey or soy proteins; using sulfite ion forming

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agents such as sodium sulfite. Such modified proteins will have free –SH groups available for further reactions.

16. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the teachings of R1 by replacing the sulfhydryl group source, i.e., cysteine, with another sulfhydryl group source, i.e., modified whey protein or modified soy protein made by the method of sulfitolysis disclosed by R2. One would do so to replace the cysteine of R1 so that higher concentrations of free sulfhydryl groups, provided by the modified protein, can be incorporated into products without affecting the taste and aroma of the product as caused by high concentrations of cysteine. Absent any evidence to contrary and based on the combined teachings of the cited references, there would be a reasonable expectation of success in preparing the modified proteins and incorporate them into other protein containing foods as presently claimed.

1. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes (US 4,110,476; hereinafter R3) in view of .Savolainen (WO 99/55170; of record; hereinafter R2)

2. R3 discloses adding whey protein concentrate to milk in a process for making yogurt. The mixture is heated by a high temperature short time method. (Example 1)

3. R3 is silent regarding the incorporation of modified whey proteins.

4. R2 discloses the modification of whey proteins resulting in the generation of free sulfhydryl groups in the protein. (As outlined above)

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5. It is noted that heating whey proteins (i.e., lactoglobulin) generates free sulfhydryl groups in whey protein (a process well known in the art). The free sulfhydryl groups will interact with caseins when milk is heated. (a known reaction in the art).

6. Therefore, it would be obvious to supply milk with some free sulfhydryl groups in the form of modified whey proteins to enhance the reaction of whey proteins and casein in milk. Absent any evidence to contrary and based on the combined teachings of the cited references, there would be a reasonable expectation of success in enhancing the reaction of sulfhydryl groups with caseins in milk when heated as presently claimed.

Response to Arguments

Applicants' arguments are moot in light of the new grounds of rejection necessitated by amendments.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Petrucelli, S. et al. 1995. Partial reduction of soy protein isolate disulfide bonds. J. Agric. Food. Chem. 43: 2001-2006. This article gives the details of sulfitolysis of soybean protein isolates and the generation of free sulfhydryl groups in the modified protein.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-F, 8:00-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HAMID R BADR
Examiner
Art Unit 1781

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Examiner, Art Unit 1781